

ELECTRONICS TECHNICIAN

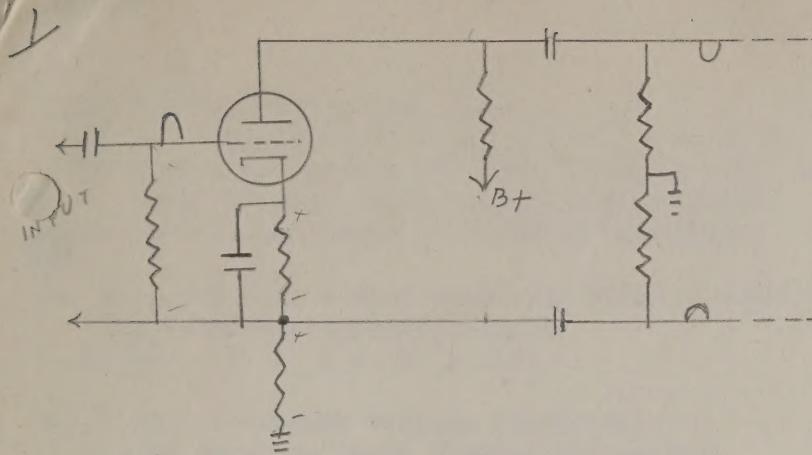
Examination

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Date JAN-17-57

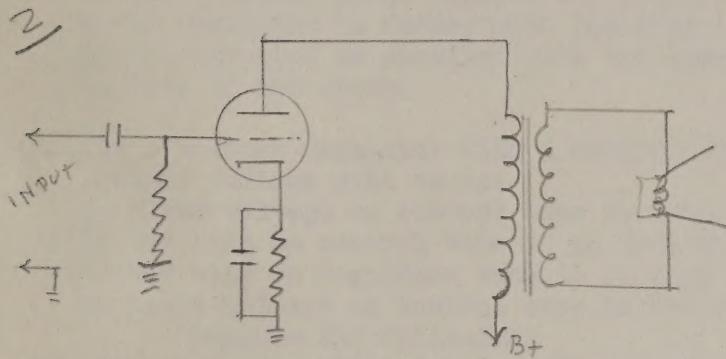
Pentodes--Phase Inverters--Output Stages--Voltage Regulators

Circle the most correct answer:

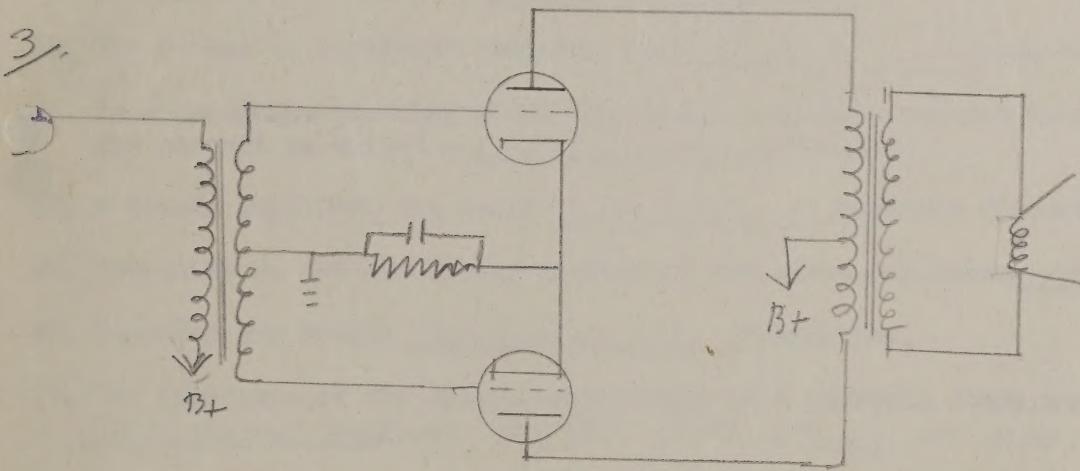
1. In a pentode a change in plate voltage:
 - a. causes a great change in plate current.
 - b. causes no change in plate current.
 - c. has little effect on plate current.
 - d. none of the above.
2. The plate resistance of a pentode:
 - a. is low.
 - b. comparable to a high mu-triode.
 - c. is caused by secondary emission.
 - d. requires high values of load resistance.
3. The gain of a pentode can be:
 - a. increased by raising screen voltage.
 - b. lowered by increasing the resistance of the screen resistor.
 - c. increased by raising the bias.
 - d. increased by increasing the value of the screen resistor.
4. In a paraphrase phase inverter:
 - a. the phase inverter tube must have a lower value of plate load resistor.
 - b. the outputs must be equal.
 - c. the outputs must be opposite in phase.
 - d. the bias resistors determines the amount of output.
5. The screen in a pentode:
 - a. is at B plus signal potential.
 - b. prevents secondary emission.
 - c. reduces capacity between grid and plate.
 - d. has no effect on plate current.
6. Single tube phase inversion:
 - a. can be obtained by dividing the plate load between plate and cathode.
 - b. requires a capacitor from cathode to ground.
 - c. must be a pentode.
 - d. is not possible.
7. Phase inversion is to provide :
 - a. unequal voltages.
 - b. equal voltages.
 - c. equal and opposite phased voltages.
 - d. opposite phased voltages.
8. A single-ended power amplifier to provide undistorted output must be operated class:
 - a. AB.
 - b. A
 - c. B
 - d. AB.



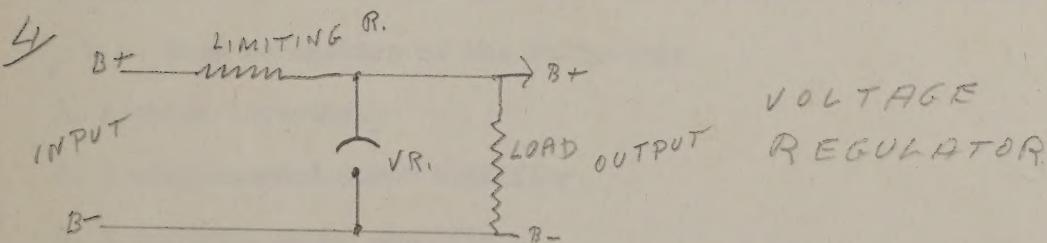
LUCAS
SPLIT LOAD
PHASE INVERTER.



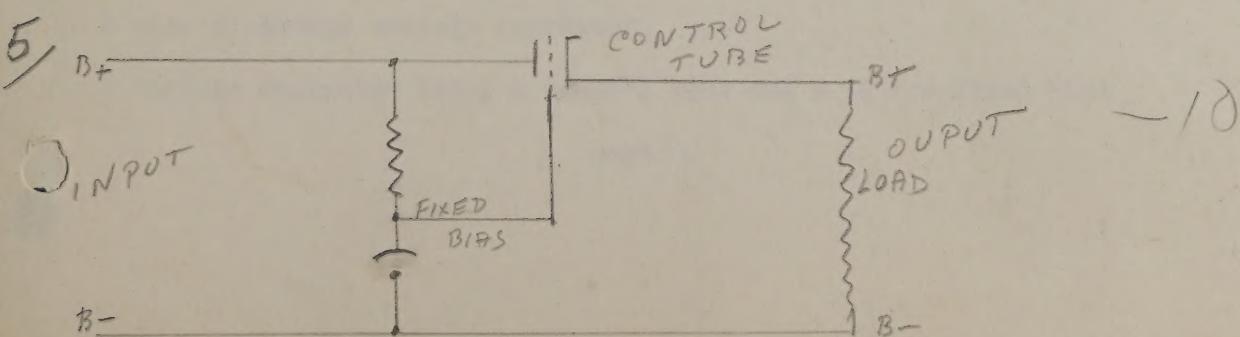
SINGLE ENDED
POWER AMPLIFIER



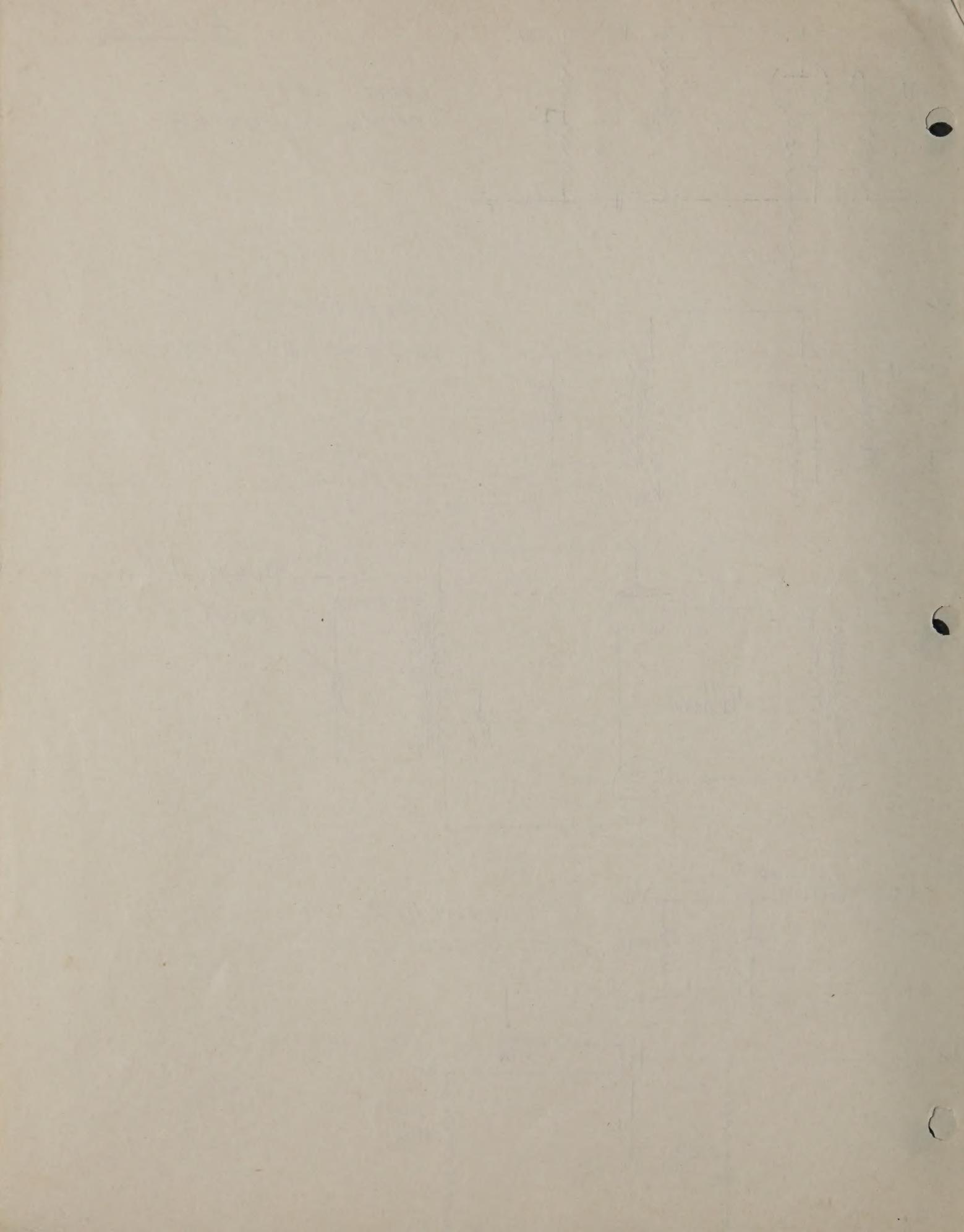
PUSH-PULL
POWER AMPL.



VOLTAGE
REGULATOR



-10



9. In a beam power output tube:
 a. the suppressor is connected to the cathode. ✓
 b. suppressor action is accomplished by beam current.
 c. large voltage input signals are required.
 d. current is limited by secondary emission. ✓
10. In a pushpull output stage for maximum power output with the least amount of distortion the tubes are operated: class:
 a. B; b. A₂; c. A₁; AB₂
11. A glow discharge voltage regulator:
 a. can regulate large changes in current.
 b. is connected in series with the load.
 c. is connected in parallel with the load.
 d. None of the above.
12. In a voltage regulator with a control tube and a VR tube for its fixed bias, a drop in output voltage will cause:
 a. plate voltage on control tube to drop.
 b. the bias on control tube to go more positive.
 c. the bias on regulator tube to go more positive.
 d. plate voltage on control tube to increase.
- Complete the following:
13. In a tetrode operated below the screen voltage, plate current may DECREASE with an increase in plate VOLTAGE.
14. The screen in a pentode isolates the PLATE ^(SUPPRESSOR) from the CONTROL GRID.
15. In a paraphase inverter where the output resistors connect to a common resistor to ground the circuit is called a SELF-BALANCING inverter.
16. A triode amplifier can cause SECOND harmonic distortion.
17. Operating on the non-linear portion of the curve can cause HARMONIC OR NON-LINEAR distortion.
18. Pentodes can create 3rd HARMONIC distortion.
19. The impedance of the output transformer in a pushpull stage must equal THE LOADS FOR BOTH TUBES ADDED (R_{L1} + R_{L2}) OR IMPEDANCE FOR BOTH TUBES.
20. For undistorted output the tubes in a pushpull stage should be MATCHED.

Draw schematics of the following:

1. A phase inverter.
2. A single-ended power amplifier.
3. A pushpull power amplifier.
4. A glow discharge voltage regulator.
5. A voltage regulator using a control tube and a VR for fixed bias.

